

# ROYAL ASTRONOMICAL SOCIETY.

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Captain W. H. SMYTH, R.N. President, in the Chair.

Charles Piazzzi Smyth, Esq. Professor of Practical Astronomy at the University of Edinburgh and Astronomer Royal for Scotland, was balloted for, and duly elected a Fellow of the Society.

The following communications were read, arranged under the following heads:—

## OBSERVATIONS of ASTRÆA.

PULKOWA. In the Meridian.

		Pulkowa M.T.	R.A.	Dec.
		<sup>h</sup> <sup>m</sup> <sup>s</sup>	<sup>h</sup> <sup>m</sup> <sup>s</sup>	
1845	Dec. 26	9 46 18	4 6 55.88	+ 12° 48' 8".5
	27	9 28 20	4 4 40.56	55 14.0

ALTONA. In the Meridian. (M. Petersen.)

		Altona M.T.	R.A.	Dec.
		<sup>h</sup> <sup>m</sup> <sup>s</sup>	<sup>h</sup> <sup>m</sup> <sup>s</sup>	
1846	Jan. 11	8 36 29.5	60° 14' 21".3	+ 13° 29' 1".6

BONN. Circular Micrometer. (Professor Argelander.)

Date.	Bonn M.T.	R.A.	Dec.	No. of Obs.	Star of Comp.
1846.	<sup>h</sup> <sup>m</sup> <sup>s</sup>	<sup>h</sup> <sup>m</sup> <sup>s</sup>	<sup>h</sup> <sup>m</sup> <sup>s</sup>		
Jan. 2	13 0 45.3	60° 48' 14".7	+ 13° 2' 25".8	5	a
	14 9 19.2	47 56.4	2 35.1	5	a
4	6 5 8.3	38 40.6	6 55.5	8	b
5	7 32 25.0	33 29.2	9 50.0	8	b
	8 7 4.8	33 22.8	9 54.8	6	a

Assumed *apparent* positions of the stars:—

	R.A.	Dec.
<i>a</i>	60° 6' 56".3 56.2	+ 12° 59' 5".5 5.4
<i>b</i>	59 55 54.4	+ 13 6 30.1

One observation at the meridian circle gives the right ascension of *a*, 3".8 greater.

Three passages of *b* at the circular micrometer, compared with the assumed right ascension of *a*, give the right ascension of *b*, 5".2 greater.

In the Meridian.

	Bonn M.T.	R.A.	Dec.
1846 Jan. 5	<sup>h</sup> <sup>m</sup> <sup>s</sup> 9 2 29.6	60° 33' 6".6	+ 13° 9' 56".4

only one wire observed for right ascension. M. Argelander considers the declination good.

These observations are *not* corrected for parallax.

KÖNIGSBERG.

With the Heliometer.

(M. Wichmann.)

Date.	Königsberg M. T.	R.A.	Dec.	Differences from the Stars of Comparison.		
					R.A.	Dec.
1846. Jan. 12	<sup>h</sup> <sup>m</sup> <sup>s</sup> 7 35 9	60° 13' 5".3	+ 13° 32' 13".4	<i>a</i>	+ 17' 10".6	+ 25' 45".4
	9 45 9	12 57.3	32 34.1	<i>b</i>	5 57.9	33 29.1
14	9 5 8	11 44.8	39 56.8	<i>b</i>	+ 4 45.4	+ 40 51.8
15	9 22 33.9	11 53.9	43 57.8			
21	12 4 22.0	† 28 36.4	14 9 54.6			
25	10 56 52.3	41 0.73	28 28.88	<i>d</i>	— 12 19.06	— 3 27.53
	12 26 46.0	41 19.01	28 46.40	<i>d</i>	12 0.80	— 3 10.01
26	10 23 33.0	46 29.91	33 15.98	<i>d</i>	6 49.71	+ 1 19.80
27	10 48 32.4	52 40.12	38 17.55	<i>d</i>	— 0 39.31	6 21.60
28	9 13 20.5	58 47.90	42 59.12	<i>d</i>	+ 5 28.65	11 3.40
29	9 21 7.4	61 5 49.10	48 5.91	<i>d</i>	12 30.03	16 10.42
30	9 32 26.0	13 21.38	52 16.54	<i>d</i>	+ 20 2.49	+ 21 21.28

The *mean* places of these stars for 1846 are, very nearly,

	R.A.	Dec.
<i>a</i>	59° 55' 26".6	+ 13° 6' 30".7
<i>b</i>	60 6 31.3	+ 12 59 7.7
<i>d</i>	60 52 53.25	+ 14 31 59.5

† Quære, 23'!

## HAMBURG.

(M. Rumker.)

Date.	Hamburg M.T.	R.A.	Dec.	No. of Obs.
1845. Dec. 28	<sup>h</sup> 8 <sup>m</sup> 28 <sup>s</sup> 0.6	61° 26' 11".7	..... "	
	8 32 33.3	.....	+ 12 51 29.1	
	9 37 16.0	25 36.6	51 30.5*	
31	6 47 35.8	3 25.2	57 11.3	
1846. Jan. 1	7 5 19.0	60 56 27.7	+ 12 59 27.1	
2	6 43 57.2	50 3.0	13 1 47.1	
	10 19 45.0	49 1.7	2 8.9	
3	6 53 28.4	43 59.6	4 17.8	
	9 10 35.2	43 24.9	4 26.7*	
4	7 6 12.2	38 37.2	6 44.0	
5	7 53 59.5	33 23.2	9 41.1	
15	8 54 3.1	11 57.4	43 58.3	
20	8 2 11.3	19 57.9	14 4 50.9*	
	8 42 29.3	20 11.7	5 9.2	
27	7 0 0.0	51 58.4	37 40.4	
	9 5 41.1	52 18.6	38 7.3	
Feb. 1	10 43 4.3	61 30 27.7	15 4 8.8	
2	10 52 31.0	39 20.4	9 18.0	indiff.
18	9 16 54.0	64 57 15.2	16 39 35.2	11
26	10 3 43.9	67 12 45.1	17 25 57.2	11
27	9 29 31.3	30 40.6	31 56.1	6
28	10 23 32.4	67 50 15.2	+ 17 37 30.1	31

The observations marked \* were made with the meridian circle, the others with the equatoreal.

On February 28, the planet was so near a small star that Mr. Rumker expected an occultation. The light of the planet differed from that of the star, and Mr. Rumker thought that he could discern a disc.

## MARKREE.

(E. J. Cooper, Esq.)

	Greenwich M.T.	R.A.	Dec.
	<sup>h</sup> <sup>m</sup> <sup>s</sup>	<sup>h</sup> <sup>m</sup> <sup>s</sup>	<sup>°</sup> <sup>'</sup> <sup>"</sup>
1845 Dec. 30	10 2 10	4 4 36.8	+ 12 55 35
31	12 3 25	4 6.0	12 59 0
1846 Feb. 5	3 19 52.2	8 29.52	15 25 19.4
7	3 14 94.4	9 55.80	36 17.0

The observations of December 30, February 5 and 7, are with the meridian circle, having the lines illuminated. That on De-

cember 31 is derived from a comparison with 458 A.S.C. by the comet seeker.

STARFIELD. 20-foot equatoreal reflector. (W. Lassell, Esq.)

Starfield Sid. T.

$\begin{smallmatrix} h & m & s \end{smallmatrix}$  8 10 10<sup>·</sup>9 Astræa follows  $a$  in 57<sup>s</sup> 13 follows  $b$  34<sup>s</sup> 44

8 31 23<sup>·</sup>3 Astræa S. of  $a$  9' 46<sup>''</sup> 62 S. of  $b$  4' 53<sup>''</sup> 47

Approximate R.A. of  $a$  4<sup>h</sup> 39<sup>m</sup> 48<sup>s</sup> N.P.D. 71° 33'

$a$  (8<sup>·</sup>9) mag.  $b$  (9<sup>·</sup>10) mag.

Mr. Chevallier suggests that a star once observed by Lord Wrottesley, and not to be found when subsequently looked for, might be an earlier appearance of *Astræa*. Mr. Hind has consulted Lord Wrottesley's MSS., but cannot find any evidence to confirm Mr. Chevallier's hint.

### ELEMENTS of ASTRÆA.

Dr. Peters and M. Otto Struve have computed the following elements from the Pulkowa observations of December 26 and December 30, and the Berlin observation of December 14.

Perihelion passage, 1846, June 19<sup>·</sup>582. Berlin Mean Time.

Log. mean motion .....	2 <sup>·</sup> 920951	
Log. $a$ .....	0 <sup>·</sup> 419370	
Log. $e$ .....	9 <sup>·</sup> 330833	
$\pi - \Omega$ .....	354 <sup>°</sup> 58' 56 <sup>''</sup>	} Apparent Equinox, Dec. 26.
$\Omega$ .....	140 <sup>°</sup> 56' 30 <sup>''</sup>	
$i$ .....	5 <sup>°</sup> 20' 10 <sup>''</sup>	

The three observations are represented within 1". Aberration and parallax are taken into account.

Dr. Galle, of Berlin, has deduced the following elements from the observations of December 14, December 31, and January 15. They represent the places on those days exactly, but diverge in right ascension on the other side of Encke's elements.

Mean Anomaly.....	318 <sup>°</sup> 51' 25 <sup>''</sup> 08	Jan. 0, 1846.
Mean Longitude .....	94 <sup>°</sup> 7' 15 <sup>''</sup> 38	} Mean Equinox, Jan. 0.
Perihelion.....	135 <sup>°</sup> 15' 50 <sup>''</sup> 31	
Node.....	141 <sup>°</sup> 25' 47 <sup>''</sup> 74	
Inclination .....	5 <sup>°</sup> 19' 17 <sup>''</sup> 78	
$\phi$ .....	10 <sup>°</sup> 51' 53 <sup>''</sup> 50	
Log. $a$ .....	0 <sup>·</sup> 4112122	

Mean Daily Motion 857<sup>''</sup> 4096

Sidereal Revolution, 1511<sup>·</sup>530 days.

Mr. A. Graham, of Markree Observatory, has computed the following elements from the observations made at Altona and Ham-